



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/600,850	06/20/2003	Ayumu Oda	59408 (49321)	6007
21874	7590	12/09/2005	EXAMINER PHAM, HAI CHI	
EDWARDS & ANGELL, LLP P.O. BOX 55874 BOSTON, MA 02205			ART UNIT 2861	PAPER NUMBER

DATE MAILED: 12/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/600,850	Applicant(s) ODA ET AL.	
	Examiner Hai C. Pham	Art Unit 2861	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-13 and 15-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-13 and 15-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claims 1, 10 and 21 are objected to because of the following informalities:

Claim 1:

- Line 3, "an optical writing unit" should read --said optical writing unit-- since it has been recited in the preamble.

Claim 10:

- Line 7, "an optical writing unit" should read --said optical writing unit-- since it has been recited in the preamble.

Claim 21:

- Line 10, "an optical writing unit" should read --said optical writing unit-- since it has been recited earlier within the claim.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 4, 7-13, 16, 19-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iannazzi (U.S. 6,842,188) in view of Deguchi et al. (U.S. 6,061,526).

Iannazzi discloses a method and apparatus for adjusting the focus of a multichannel printhead (500), the method comprising forming a test pattern including a multiple pattern elements disposed along an image forming area in a main scanning direction (density patches 82) (Fig. 4), said multiple pattern element being of varying density levels corresponding to different amounts of adjustment (the test patch being formed by randomly varying the focus position of the printhead so as to have varying density levels corresponding to different focus positions of the printhead), and adjusting the position of the printhead relative to the surface of the image-carrying member (drum 300) by the amount of adjustment indicated by the measured density levels of the multiple pattern elements (col. 3, lines 13-25 and col. 7, line 26 to col. 8, line 40).

However, Iannazzi teaches the density patches having small gaps and thus fails to teach the test pattern being an uninterrupted pattern, the test pattern being binary pattern elements (claims 4, 16), both ends of the optical writing unit are affixed to an adjustment mechanism (claim 9), a memory for storing the test pattern (claims 10, 12, 21),

Deguchi et al. discloses an image recoding apparatus including a focus position control device for adjusting the focus position of the printhead based on the density test pattern that includes uninterrupted multiple test patterns arranged in the main scanning direction (Fig. 19). Deguchi et al. further teaches the test pattern having 256 density levels provided by an 8-bit image data, and the ends of the exposure head (220) being

affixed to an adjustment mechanism, i.e., spacer (202), screw mechanism (203) or wedge (204) (Figs. 15a-15c), a memory for storing the test pattern (LUT data for LUT gradation conversion processing).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the test pattern in the device of Iannazzi to include uninterrupted test patterns as well as providing appropriate adjusting mechanism as taught by Deguchi et al. The motivation for doing so would have been to provide an accurate focus adjustment mechanism according to the linearly varying density levels.

Iannazzi further teaches:

- Adjustment quantity information showing the amount of adjustment corresponding to the density levels being indicated by the test pattern (e.g., the focus position adjustment being based on the fine focus proof chart as shown in Fig. 5);
- installing the optical writing unit at an offset position closer to or farther away from the image-carrying member (e.g., randomly varying the focus position of the printhead relative to the drum so as to have varying density levels corresponding to different focus positions of the printhead);
- a retainer for holding the writing unit (translation stage member 220), an actuator (focus motor 51) for providing the moving mechanism with motive power for varying the position of the optical writing unit;

- reading an image of the test pattern formed on the printing medium (e.g., using a densitometer).

4. Claims 3, 5-6, 15 and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iannazzi in view of Deguchi et al., as applied to claims 1 and 10 above, and further in view of Patten et al. (Pub. No. U.S. 2002/0196473).

Iannazzi in view of Deguchi et al. further teaches the density levels of the test pattern corresponding to light emitting time/power of the individual light emitting elements (Deguchi et al., Fig. 17), but fails to teach the density levels being determined by the diameter of individual dots.

Patten et al. discloses a focus adjustment mechanism by printing a continuous test patterns along the main scanning direction (Fig. 5A), the test patterns having varying density levels, which are defined by the size or diameter of the spot on the imaging surface, or by varying the exposure level.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to form the test pattern based on the individual dot diameter as taught by Patten et al. since Patten et al. teaches this to be well known art to either vary the size of the dot diameter or the exposure power to provide a test pattern of varying density, the implement of which would only require routine skill in the art.

Response to Arguments

5. Applicant's arguments with respect to claims 1, 3-13 and 15-22 have been considered but are moot in view of the new grounds of rejection as presented in this Office action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai C. Pham whose telephone number is (571) 272-2260. The examiner can normally be reached on M-F 8:30AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on (571) 272-1934. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



HAI PHAM
PRIMARY EXAMINER

December 7, 2005